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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/769,119	01/25/2001	Richard Vandervoort Cox	2000-0031	5567

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EXAMINER	
ALBERTALLI, BRIAN LOUIS	

ART UNIT	PAPER NUMBER
2655	7

DATE MAILED: 06/22/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/769,119	COX ET AL.	
	Examiner	Art Unit	
	Brian L Albertalli	2655	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 6.✓
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The disclosure is objected to because of the following informalities:

   a) On page 4, line 31, "ADR 156" should be –ADR 154--.

   b) On page 7, line 22, "step 202" should be –step 204--.

   Appropriate correction is required.

Claim Objections

2. Claims 1 and 13 are objected to because of the following informalities:

   a) In claim 1, line 6, "period=s" should be –period's--.

   b) In claim 13, line 6, "period=s" should be –period's--.

   Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kotzin et al. (U.S. Patent 5,555,447) in view of Alleyne et al. (U.S. Patent 5,216,744).

In regard to claim 1, Kotzin et al. discloses a method for time-scale compressing a talkspurt for transmission over a network.

The access delay for the network is established (Fig. 5 and column 3, lines 41-49);

at least one frame of voice signal is received (Fig 11, step 1109 and column 5, lines 27-29);

and the voice signal is time-compressed until the amount of voice signal removed (not docked into FIFO 827) is substantially the same as the access delay (FIFO 827 is substantially empty, column 5, lines 30-67).

Furthermore, Kotzin et al. discloses that techniques to compress the timescale of a speech signal without distorting or altering the pitch frequency of the speech signal are well known and can be used to mitigate a delay (column 6, lines 1-32).

Kotzin et al. does not disclose that the time-compression is accomplished by removing an integer number of pitch period's worth of voice signal.

Alleyne et al. discloses a method for time scale modification of speech. An integer number (pitch periods N+1 and N+2) of pitch periods are removed (combined into pitch period C) from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method that removed an integer number of pitch periods worth of voice signal, as disclosed by Alleyne et al., in order to provide a more effective

technique of compression of the time scale so the output speech would still sound normal as the delay was mitigated.

5. In regard to claim 2, Kotzin et al. does not disclose that a new pitch period is calculated for each frame of speech signal from which a portion is cut.

Alleyne et al. discloses that the pitch period is calculated for each portion of the speech signal from which a portion is cut (Fig. 3, step 122; Fig. 4, step 154; column 4, lines 5-9; and column 5, lines 22-33).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method that removed an integer number of pitch periods worth of voice signal and calculated the pitch period for each portion of the speech signal from which a portion is cut, as disclosed by Alleyne et al., in order to provide a more effective technique of compression of the time scale so the output speech would still sound normal. Calculating the pitch period for every frame would ensure that the correct number of samples (corresponding to one or more pitch periods) were removed from the speech signal so the voice would still sound normal, and would be sufficiently frequent, because 20 milliseconds (the length of a frame) represents no change in the characteristics of the speech signal, as taught by Alleyne et al. (column 10, lines 13-20).

6. In regard to claim 3, Kotzin et al. does not specifically disclose establishing a time interval over which the access delay is to be mitigated, wherein the time interval is longer than the access delay.

However, Kotzin et al. does disclose that when using a time-compression method, such as disclosed in Alleyne et al., it is possible to control the transition from transmitting compressed speech to transmitting normal speech gradually (column 6, lines 17-24). This would suggest to one of ordinary skill in the art at the time of invention that a time interval over which the access delay would be mitigated would be longer than the access delay.

7. In regard to claim 4, Kotzin et al. discloses that a value governing the rate over which the access delay is mitigated is established (column 6, lines 24-28).

8. In regard to claim 5, Kotzin et al. discloses that the steps of (a)-(d) of claim 1 are performed for each talkspurt (each time the push-to-talk (PTT) is pressed) of a call (column 5, lines 7-15).

9. In regard to claim 6, Kotzin et al. does not disclose that a first portion is removed from a terminal section of a frame.

Alleyne et al. discloses a method in which an integer number of pitch periods are removed from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

Alleyne et al. does not specifically disclose that those pitch periods are removed from the terminal section of a frame.

It would have been obvious to one of ordinary skill in the art at the time of invention to remove the pitch periods from the terminal section of the frame so that the additional calculations necessary to remove a middle pitch period of the frame (to match the first section before the pitch period to the second section after the pitch period to eliminate clicks or pops in the output) would not have to be calculated, thereby reducing computation time and this delay.

10. In regard to claims 7-9, Kotzin et al. does not disclose that the end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; or that the first and second segments are multiplied by a window and added together to form the overlap-added segment.

Alleyne et al. discloses that the end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; and that the first and second segments are multiplied by a window (ramp function) and added together to form the overlap-added segment (Fig. 6-A through 6-C; column 7 lines 47-67; and column 8, lines 1-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method removed an integer number of pitch periods worth of voice signal, in which first and second segments are multiplied by a window and added together to form an overlap-added segment, as disclosed by Alleyne et al., so that the first segment and second segment would blend smoothly together, as taught by Alleyne et al. (column 8, lines 29-35).

11. In regard to claim 10, neither Kotzin et al. nor Alleyne et al. discloses that any decision is made as to whether the input speech signal is voiced or unvoiced. This would suggest to one of ordinary skill in the art at the time of invention that Kotzin et al., as modified by Alleyne et al., would attempt to detect the pitch period of the input speech signal, even if the portion was unvoiced speech. This result would then be used to remove a portion of the signal.

12. In regard to claim 11, Kotzin et al. discloses that the access delay is a channel access delay (delay D) to the network (column 3, lines 41-49).

13. In regard to claim 12, Kotzin et al. discloses a voice activity detector (speech presence detector, Fig. 8, 806) that determines whether speech is present. The voice activity detector mitigates the delay by producing a time-compressed pattern (Fig. 11, step 1106, column 5, lines 26-34).

In regard to claim 13, Kotzin et al. discloses a communication device that includes an access delay reducer (FIFO Fig.8, 827). Furthermore, Kotzin et al. discloses that techniques to compress the timescale of a speech signal without distorting or altering the pitch frequency of the speech signal are well known and can be used to mitigate a delay (column 6, lines 1-32).

14. Kotzin et al. does not disclose that the access delay reducer removes an integer number of pitch period's worth of the input voice signal.

Alleyne et al. discloses a device for time scale modification of speech. An integer number of pitch periods are removed from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification system that removed an integer number of pitch periods worth of voice signal, as disclosed by Alleyne et al., in order to provide a more effective technique of compression of the time scale so the output speech would still sound normal.

15. In regard to claim 14, Kotzin et al. does not disclose that the access delay reducer is configured so that a first portion is removed from a terminal section of a frame.

Alleyne et al. discloses a system in which an integer number of pitch periods are removed from the speech signal to time-compress the speech signal (column 4, lines 42-52 and column 5, lines 22-66).

Alleyne et al. does not specifically disclose that those pitch periods are removed from the terminal section of a frame.

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the access delay reducer removed the pitch periods from the terminal section of the frame so that the additional calculations necessary to remove a middle pitch period of the frame (to match the first section before the pitch period to the second section after the pitch period to eliminate clicks or pops in the output) would not have to be calculated, thereby reducing computation time and this delay.

16. In regard to claims 15-17, Kotzin et al. does not disclose that the access delay reducer is further configured to form an end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint portion of the terminal section of the frame; or that the first and second segments are multiplied by a window and added together to form the overlap-added segment.

Alleyne et al. discloses that the end portion of the time scaled frame comprises an overlap-add segment; that is formed from a first segment of the of the frame located immediately before the first portion, and a second segment comprising an endpoint

portion of the terminal section of the frame; and that the first and second segments are multiplied by a window (ramp function) and added together to form the overlap-added segment (Fig. 6-A through 6-C; column 7 lines 47-67; and column 8, lines 1-39).

It would have been obvious to one of ordinary skill in the art at the time of invention to modify Kotzin et al. so the time-compression was accomplished by a time scale modification method removed an integer number of pitch periods worth of voice signal, in which first and second segments are multiplied by a window and added together to form an overlap-added segment, as disclosed by Alleyne et al., so that the first segment and second segment would blend smoothly together, as taught by Alleyne et al. (column 8, lines 29-35).

17. In regard to claim 18, Kotzin et al. discloses that the access delay reducer is configured to remove a first portion from a corresponding frame for each talkspurt (each time the push-to-talk (PTT) is pressed) of a call (column 5, lines 63-67).

18. In regard to claim 19, neither Kotzin et al. nor Alleyne et al. discloses that any decision is made as to whether the input speech signal is voiced or unvoiced. This would suggest to one of ordinary skill in the art at the time of invention that Kotzin et al., as modified by Alleyne et al., would attempt to detect the pitch period of the input speech signal, even if the portion was unvoiced speech. This result would then be used to remove a portion of the signal.

Conclusion

19. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. French et al. (U.S. Patent 3,104,284) discloses a system for time modification of speech audio waveforms that preserves the pitch of the speech. Cox et al. (*Real-Time Implementation of Time Domain Harmonic Scaling of Speech for Rate Modification and Coding*) discloses a method of time-compression of an audio signal utilizes an autocorrelation function pitch detection algorithm. Roucos et al. (*High Quality Time-Scale Modification for Speech*) discloses a method to of time scale modification for speech that reduces the amount of computation required. Satyamurti et al. (U.S. Patent 5,699,404) discloses a system that performs time scale compression on a speech signal in a communications product to reduce the amount of information that needs to be transmitted. Ehara (U.S. Patent 5,706,393) discloses a transmission apparatus that compresses the time axis to remove delay caused by the voice activity detector. Vargo et al. (U.S. Patent 6,356,545) discloses an Internet telephone system that transmits packets that are time scale compressed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian L Albertalli whose telephone number is (703) 305-1817. The examiner can normally be reached on Monday - Friday, 8:30 AM - 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Talivaldis Smits can be reached on (703) 305-3011. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

BLA 6/9/04

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PRIMARY EXAMINER